

WHAT IS CLAIMED IS:

1. A mechanism for filtering snoop requests to a cache memory, said mechanism comprising:

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a first storage including a plurality of entries configured to store a first set of corresponding snoop filter indications;

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a second storage including a plurality of entries configured to store a second set of corresponding snoop filter indications; and

a cache controller coupled to said first and said second storages and configured to receive a transaction request including an address;

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wherein said cache controller is configured to generate a first index value for accessing said first storage by performing a first hash function on said address and wherein said cache controller is configured to generate a second index value for accessing said second storage by performing a second hash function on said address;

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wherein said cache controller is further configured to selectively generate a snoop operation to said cache memory for said transaction request dependent upon a corresponding snoop filter indication stored in each of said first storage and said second storage that corresponds to said address.

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2. The mechanism as recited in claim 1, wherein said cache controller is configured to generate said snoop operation to said cache memory for said transaction request if said corresponding snoop filter indication stored in each of said first storage and said second

storage is a value indicative that a cache line corresponding to said address was stored within said cache memory.

3. The mechanism as recited in claim 1, wherein said cache controller is configured
5 to ignore said transaction request if either of said corresponding snoop filter indications stored in said first storage and said second storage is a value indicative that a cache line corresponding to said address is not stored within said cache memory.

4. The mechanism as recited in claim 1, wherein, in response to a local cache
10 memory request, said cache controller is further configured to store within said first storage said corresponding snoop filter indication at a first index value corresponding to an address associated with said local cache memory request and to store within said second storage said corresponding snoop filter indication at a second index value corresponding to said address associated with said local cache memory request.

15 5. The mechanism as recited in claim 1, wherein in response to a predetermined number of said plurality of entries of said first storage and said second storage becoming populated with said first and second sets of said snoop filter indications, respectively, said cache controller is further configured to disable filtering snoops by generating a snoop
20 operation for said transaction request independent of said corresponding snoop filter indication stored in each of said first storage and said second storage.

6. The mechanism as recited in claim 5, wherein while said snoops are disabled, said
25 cache controller is configured to perform a repopulation process of said first storage and said second storage.

7. The mechanism as recited in claim 6, wherein during said repopulation process, said cache controller is further configured to initialize each of said plurality of entrees of said storage to an initialization value.

5 8. The mechanism as recited in claim 7, wherein during said repopulation process said cache controller is configured to read a tag corresponding to an address of each entry in said cache memory, generate a first index value associated with said tag using said first hash function, generate a second index value associated with said tag using said second hash function and to store a corresponding second snoop filter indication within each
10 entry of said first storage and said second storage corresponding to said first index value and said second index value, respectively.

9. A method for filtering snoop requests to a cache memory, said method comprising:

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storing a first set of corresponding snoop filter indications within a first storage;

storing a second set of corresponding snoop filter indications within a second storage; and

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receiving a transaction request including an address;

performing a first hash function on said address and generating a first index value for accessing said first storage;

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performing a second hash function on said address and generating a second index value for accessing said second storage;

selectively generating a snoop operation to said cache memory for said transaction request dependent upon a corresponding snoop filter indication stored in each of said first storage and said second storage that corresponds to said address.

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10. The method as recited in claim 9 further comprising generating said snoop operation to said cache memory for said transaction request if said corresponding snoop filter indication stored in each of said first storage and said second storage is a value indicative that a cache line corresponding to said address was stored within said cache
10 memory.

11. The method as recited in claim 9 further comprising ignoring said transaction request if either of said corresponding snoop filter indications stored in said first storage and said second storage is a value indicative that a cache line corresponding to said
15 address is not stored within said cache memory.

12. The method as recited in claim 9 further comprising, in response to a local cache memory request, storing within said first storage said corresponding snoop filter indication at a first index value corresponding to an address associated with said local
20 cache memory request and storing within said second storage said corresponding snoop filter indication at a second index value corresponding to said address associated with said local cache memory request.

13. The method as recited in claim 9 further comprising disabling filtering snoops by
25 generating a snoop operation for said transaction request independent of said corresponding snoop filter indication stored in each of said first storage and said second storage in response to a predetermined number of said plurality of entries of said first

storage and said second storage becoming populated with said first and second sets of said snoop filter indications, respectively.

14. The method as recited in claim 13 further comprising performing a repopulation
5 process of said first storage and said second storage while said snoops are disabled.

15. The method as recited in claim 14 further comprising initializing each of said
plurality of entrees of said storage to an initialization value during said repopulation
process.
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16. The method as recited in claim 15 further comprising during said repopulation
process, reading a tag corresponding to an address of each entry in said cache memory,
generating a first index value associated with said tag using said first hash function,
generating a second index value associated with said tag using said second hash function
15 and storing a corresponding second snoop filter indication within each entry of said first
storage and said second storage corresponding to said first index value and said second
index value, respectively.

17. A mechanism for filtering snoop requests to a cache memory, said method
20 comprising:

means for storing a first set of corresponding snoop filter indications within a first
storage;

25 means for storing a second set of corresponding snoop filter indications within a
second storage; and

means for receiving a transaction request including an address;

means for performing a first hash function on said address and generating a first index value for accessing said first storage;

5 means for performing a second hash function on said address and generating a second index value for accessing said second storage;

means for selectively generating a snoop operation to said cache memory for said transaction request dependent upon a corresponding snoop filter indication
10 stored in each of said first storage and said second storage that corresponds to said address.